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09/822,015	03/30/2001	Takashi Yuzawa	Q63462	8373

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SUGHRUE, MION, ZINN, MACPEAK & SEAS  
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EXAMINER

PADGETT, MARIANNE L

ART UNIT

PAPER NUMBER

1762

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/822,025

Applicant(s)

Yuzawa et al

Examiner

M.L. Padgett

Group Art Unit

1762

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

☒ Responsive to communication(s) filed on 12/4/02 + 2/7/03

☒ This action is **FINAL**.

- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1 + 3 - 4 is/are pending in the application.
- Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1 + 3 - 4 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some\* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 5
- ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other \_\_\_\_\_

Office Action Summary

1. Applicant's amendments of 2/7/03 have removed the 112, second paragraph rejections of Paper No. 4, along with their remarks on page 4, last paragraph which explain the intent of "a working liquid containing no carbon components," thus providing file wrapper estoppel for the meaning of the phrase. It is noted that as defined by applicant, the working liquid may "not include carbon in either elemental or compound form", so that any source of water with carbon contaminants, such as tap water, etc., which will have organic material and solvated CO<sub>2</sub>, CO, etc., in solution, is excluded from use by applicant's claim language.

2. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The examiner is unsure of in what statutory class claim 4 as amended, now belongs. Previously, claim 4 was a product or apparatus claim for an electrode, but the phrase "In combination" does not indicate any statutory class, and the following limitations could be read as either a process using an electrode and working liquid, or an apparatus employing the same. As written it is unclear whether use or apparatus is being claimed.

3. Claims 1 and 3-4 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants have removed the trade name "Turcite" from the claims, and replaced it with "a compound of carbon and fluorine" which is considerably broader scope, and which is not supported by the original specification, that only uses "a compound of carbon and fluorine" as a description of Turcite (page 5, lines 13-14, page 6, lines 7-8 and 19; and page 9, lines 10-11), and on page 9 further defines Turcite as being "PFPE resin", but does not provide the meaning of this acronym. While use of a trade name is of uncertain scope, that does not provide support for applicant to claim materials that are clearly unrelated to and broader in scope than disclosed Turcite. The present claims are considered to contain New Matter, as "a compound of carbon and fluorine" is inclusive of F-doped diamond or DLC, of PTFE, of all polymers that contain C and F, of all inorganic F and C containing compounds, etc., for which scope no support was found.

4. Claims 1 and 3-4 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. See above in section 3.

Claims 1 and 3-4 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for PFPE resin (needs supported defining), does not reasonably provide enablement for all compounds containing C and F. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. See the above section 3.

5. The disclosure is objected to because of the following informalities:

Acronyms used in the specification, need to be defined on their first usage. See PFPE on page 9, line 11. Note that prior art support for the supplied meaning should be supplied. Also, when trade names are used, they should be properly capitalized.

Appropriate correction is required.

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 3 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 5, 11 and 13 of copending Application No. 6,314,778 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other, because the patented claims are narrower than the application claims, however they encompass the present method claims as they are also discharge machining self-lubricating compounds, such as  $\text{MoS}_2$  or  $\text{WS}_2$  on to the surface of a substrate to form a coating and may use water as the processing liquid or working fluid. Note while the claims of the patent do not specify that no C is present in the water; read in light of the specification (col. 17, line 1-18), the claim of  $\text{H}_2\text{O}$  is consistent with no carbon being present, as it is taught that no carbides form when  $\text{H}_2\text{O}$  is used as the processing liquid. It is further noted that the present claims differ by requiring the electric discharge to be in a pulse form, while the patent claims just generally specify electric discharge. It would have been obvious to one of ordinary skill in the art that the patented claims are inclusive of pulsed electric discharges, and that use thereof would have been advantageous as pulsing provides

control of energy delivered and can present overheating and damage to substrate and/or coating being produced.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

8. Claims 1 and 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moro et al 6,314,778 B1.

Note that this rejection can be removed by supplying a certified translation of priority document and/or showing common ownership/assignment at time of invention. Besides in the claims, see the abstract; Fig. 1; col. 5, lines 42-60; col. 8, lines 9-33; col. 9, lines 52-57; col. 11, lines 45-57<sup>+</sup>; col. 15, line 55-col. 16, line 25; col. 17, lines 1-18<sup>+</sup> and col. 18, lines 1-16, for teachings of compression molding of electrodes from powders including BN, MoS<sub>2</sub>, WS<sub>2</sub>, graphite, etc., for use in water as a processing liquid when no carbides are to be formed. Note this reads on either process or apparatus interpretations of claim 4. Obviousness of pulsed discharge is discussed above, but also the discussion on col. 17, line 20-21<sup>+</sup> of the arc discharging at the surface causing micro-stirring, etc., implies pulsing.

9. Claims 1 and 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimuro et al, in view of Urashiro et al (6-183,626) and Saito et al (5-148,615).

Nishimuro et al teach making a discharge electrode to be used for electrical discharge machining, via molding powders of gypsum dihydrate and conductive metals, such as Ti, Ni, Pb, etc. See the abstract; col. 2, lines 20-60<sup>+</sup>; col. 3, lines 13-30; col. 4,

lines 10-45; and col. 5, lines 32-60. Nishimuro et al differ from the present claims by not specifying whether or not compression is used in their molding process, and not providing details of the discharge machining process in which the electrodes may be used, i.e., while surface treatment clearly occurs, whether its coating or removal is not specified, nor what fluids are employed.

The secondary references were previously discussed in section 6 of Paper No. 4, but their translations (PTO version used here) provide greater relevance. Urashiro et al employ pulsed discharging with discharge electrodes in oil or water, depending on whether C or N (oil) or O (water) are desired in the machined product, and material is both removed from and deposited on the surface being treated. Composition of these electrodes include metals such as Ni, Ti, etc., hence it would have been obvious to employ the electrodes of Nishimuro et al in process as described by Urashiro et al, employing water processing fluid, and deposition as the overlapping conductive metals show the equivalence of different metals in discharging electrodes, and Urashiro et al provides motivation to use Nishimuro et al's generically disclosed discharging machining, with specific results and processing conditions. In the PTO translation of Urashiro et al, see claims 1, 3, 6, 9; pages 10, 13-15 and 17-18.

Saito et al (5-148615) teach compressing molding of conductive materials to for discharge electrodes, where useful metal materials include Al, Ti, Ni, Mo, etc, as well as ceramic compounds. The electrodes are intended to be used in pulsed electric discharge machining in liquids, gases or vacuum to form coatings on so treated surfaces (page 2 (summary), claims 1-5, page 7-8 (compression molding and



materials), and page 10-11). It would have been obvious to one of ordinary skill in the art, that the molding process of Nishimuro et al, which is employing materials analogous to Saito et al, would have effectively included compression, as this secondary reference shows it effectively produces electrodes for use as taught in the primary reference, using overlapping materials, and use of pressure in the silicone rubber molds of Nishimuro et al would prevent any voids or fissures from forming in the electrodes, which would have been detrimental to the functioning and longevity of the electrode.

10. Claim 4 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kamata et al or JP 63005956 A.

Claim 4 is treated as a 102/103 here due to the uncertainty of its statutory class. If it is an apparatus claim (as it was originally), the method limitation in the claim are only significant as to what structures they require in order for the apparatus to be capable of functioning. The phrase "for surface treatment" means the electrode must be capable of effecting some surface, somehow, while "carrying out...in said working liquid..." means it must be functional in that liquid, but no apparatus structure relating to the liquid is given. The liquid is something employed in the apparatus or with the electrode (i.e. method limitations), so it is uncertain how much or little the working liquid feature does or should limit this claim, if it is considered an apparatus. See section 2 above.

Kamata et al teach compression molded positive electrodes, which include AgO powder mixed with stabilizing materials with lubricant/binder characteristics like polytetrafluoride ethylene powders (PTFE) in Ex. 5; or AgO mixed with metal

components such as Pb or Sn, etc. (claim 1). This electrode is employed opposed to another electrode (which it effects, so treats) with solution between them (abstract; background), which may be aqueous, thus fulfilling possible interpretations of claim 4.

The Derwent abstract for JP 63-005956 A, teaches use of BN lubricating powder, with silicon resin, molded under pressure (i.e. compressed) to form an electrode for electrical discharging, which is intended for use in printing on paper. No discussion of use with or without liquids is present in the abstracts or determinable from the figures, however nothing of the materials used or method of forming the electrode would prevent use with liquids, including those containing no C. Alternately, it would have been obvious to one of ordinary skill, that since discharging electrodes are old and well known for use in process that remove and/or deposit material and that the desired printing often employs fluids, such as inks, that the capability to be used with such liquids would have been obvious, where inks may be either organic, inorganic or a combination thereof.

11. Other art of interest includes Yamamoto et al who uses electrode materials of interest (BN, and Group IV (i.e. C) + halogens (i.e. F)) to construct electrical discharge machining electrodes, however no molding or compression is employed and the end use is in gases and does not appear to be consumable.

12. Applicant's arguments with respect to claims 1 and 3-4 have been considered but are moot in view of the new ground(s) of rejection.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See

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MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication from the examiner should be directed to M. L. Padgett whose telephone number is (703) 308-2336. The examiner can generally be reached on Monday-Friday from about 8:30 a.m. to 4:30 p.m.; and fax phone numbers are (703) 872-9310 (regular) ; (703) 872-9311 (after final); and (703) 305-6078 (unofficial).

M.L. Padgett/dh 4/29/03  
May 6, 2003



**MARIANNE PADGETT**  
**PRIMARY EXAMINER**